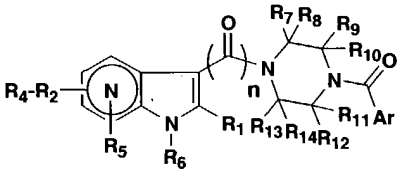
CLAIMS

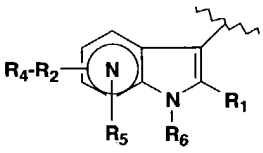
What is claimed is:

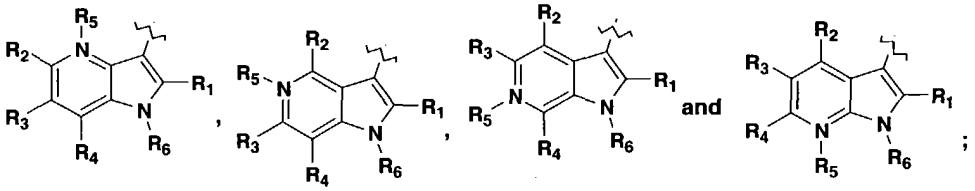
1. A compound of formula I, or a pharmaceutically acceptable salt thereof,



I

wherein:

 is selected from the group consisting of



R_1, R_2, R_3, R_4 are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, C_2-C_6 alkynyl, halogen, CN, phenyl, nitro, $OC(O)R_{15}$, $C(O)R_{15}$, $C(O)OR_{16}$, $C(O)NR_{17}R_{18}$, OR_{19}, SR_{20} and $NR_{21}R_{22}$;

R_{15}, is independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl and C_4-C_6 cycloalkenyl;

R_{16}, R_{19}, and R_{20} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_{1-6} alkyl substituted with one to three halogen atoms, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the oxygen or sulfur to which R_{16}, R_{19}, or R_{20} is attached;

R_{17} and R_{18} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon double bond of said C_3-C_6 alkenyl or the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the nitrogen to which R_{17} and R_{18} is attached;

R_{21} and R_{22} are each independently selected from the group consisting of H, OH, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 alkenyl, C_5-C_6 cycloalkenyl, C_3-C_6 alkynyl, and $C(O)R_{23}$; provided the carbon atoms which comprise the carbon-carbon double bond of said C_3-C_6 alkenyl, C_4-C_6 cycloalkenyl, or the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the nitrogen to which R_{21} and R_{22} is attached;

R_{23} is selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_2-C_6 alkynyl;

R_5 is $(O)_m$, wherein m is 0 or 1;

n is 1 or 2;

R_6 is selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_4-C_6 cycloalkenyl, $C(O)R_{24}$, $C(O)OR_{25}$, $C(O)NR_{26}R_{27}$, C_3-C_6 alkenyl, and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon double bond of said C_3-C_6 alkenyl or the

carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the nitrogen to which R_6 is attached;

R_{24} is selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_3-C_6 alkynyl;

R_{25} is selected from the group consisting of C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon triple bond of said C_3-C_6alkynyl are not the point of attachment to the oxygen to which R_{25} is attached;

R_{26} and R_{27} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 alkenyl, C_5-C_6 cycloalkenyl, and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon double bond of said C_3-C_6 alkenyl, C_5-C_6 cycloalkenyl, or the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the nitrogen to which R_{26} and R_{27} are attached;

R_7, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, and R_{14} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, C_2-C_6 alkynyl, $CR_{28}R_{29}OR_{30}$, $C(O)R_{31}$, $CR_{32}(OR_{33})OR_{34}$, $CR_{35}NR_{36}R_{37}$, $C(O)OR_{38}$, $C(O)NR_{39}R_{40}$, $CR_{41}R_{42}F$, $CR_{43}F_2$ and CF_3;

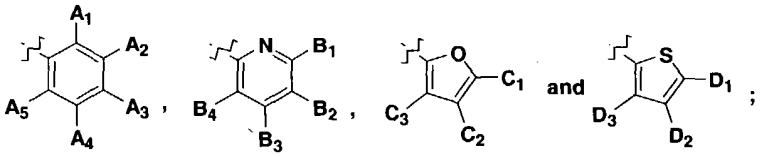
R_{28}, R_{29}, R_{30}, R_{31}, R_{32}, R_{35}, R_{41}, R_{42} and R_{43} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, C_2-C_6 alkynyl and $C(O)R_{44}$;

R_{33}, R_{34} and R_{38} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the oxygen to which R_{34} and R_{38} are attached;

R_{36} and R_{37} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the nitrogen to which R_{36} and R_{37} are attached;

R_{39} and R_{40} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the nitrogen to which R_{39} and R_{40} are attached; R_{44} is selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, and C_2-C_6 alkynyl;

Ar is selected from the group consisting of



A_1, A_2, A_3, A_4, A_5, B_1, B_2, B_3, B_4, C_1, C_2, C_3, D_1, D_2, and D_3 are each independently selected from the group consisting of H, CN, halogen, NO_2, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, C_2-C_6 alkynyl, OR_{45}, $NR_{46}R_{47}$, SR_{48}, N_3 and CH(-N=N-)-CF_3;

R_{45} is selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl and C_3-C_6 alkynyl; provided the carbon atoms which comprise the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the oxygen to which R_{45} is attached;

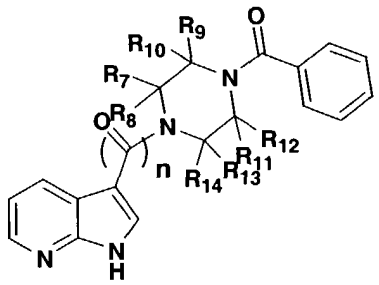
R_{46} and R_{47} are each independently selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 alkenyl, C_5-C_6 cycloalkenyl, C_3-C_6 alkynyl and $C(O)R_{50}$; provided the carbon atoms which comprise the carbon-carbon double bond of said C_5-C_6 alkenyl, C_4-C_6 cycloalkenyl, or the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the nitrogen to which R_{46} and R_{47} are attached;

R_{48} is selected from the group consisting of H, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_4-C_6 cycloalkenyl, C_3-C_6 alkynyl and $C(O)R_{49}$; provided the carbon atoms which comprise the carbon-carbon triple bond of said C_3-C_6 alkynyl are not the point of attachment to the sulfur to which R_{48} is attached;

R_{49} is C_1-C_6 alkyl or C_3-C_6 cycloalkyl; and

R_{50} is selected from the group consisting of H, C_1-C_6 alkyl, and C_3-C_6 cycloalkyl.

2. A compound of claim 1, or a pharmaceutically acceptable salt thereof, selected from the group consisting of compounds 5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h, 5i and 5ai as identified below:



Compd #	n	R
5a	2	R_{7-13} = H, R_{14} = (*R*)-Me
5b	2	R_{7-8} = R_{10-14} = H, R_9 = Et
5c	1	R_{7-8} = R_{10-14} = H, R_9 = Et
5d	2	R_{7-14} = H
5e	2	R_{7-8} = R_{10-14} = H, R_9 = Me
5f	2	R_{7-13} = H, R_{14} = (*S*)-Me
5g	2	R_{7-13} = H, R_{14} = Et
5h	2	R_{7-12} = H, R_{13} = R_{14} = Me
5i	2	R_{7-8} = R_{10-13} = H, R_9 = R_{14} = Me
5ai	2	R_{7-8} = R_{9-13} = H, R_{14} = Me

3. A compound of claim 1, or a pharmaceutically acceptable salt thereof, selected from the group consisting of compounds 5j, 5k and 5l as identified below:

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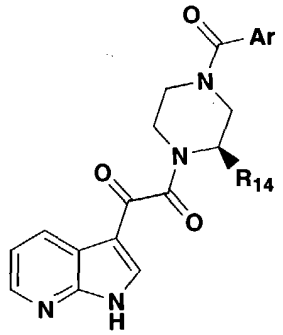
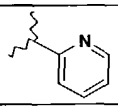
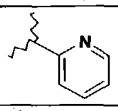
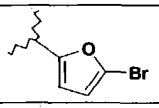
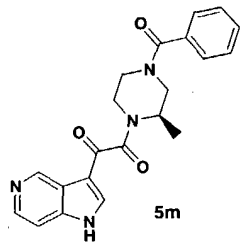


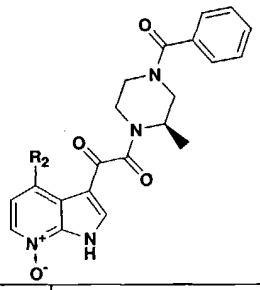
Compound #	R_{14}	Ar
5j	H	
5k	(*R*)-Me	
5l	(*R*)-Me	

4. A compound of claim 1, or a pharmaceutically acceptable salt thereof, having the formula 5m identified below:



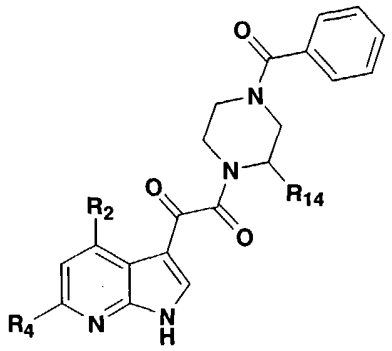
5m

5. A compound of claim 1, or a pharmaceutically acceptable salt thereof, selected from the group consisting of compounds 8a, 15a, 16a, 16d and 16e identified below:



Compound #	R_2
8a	H
15a	NO_2
16a	OMe
16d	OEt
16e	SPr

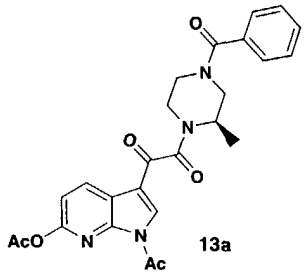
6. A compound of claim 1, or a pharmaceutically acceptable salt thereof, selected from the group consisting of compounds 9a, 9b, 10a, 11a, 11b, 11c, 12a, 14a, 17a-17f, 18a, 19a and 20a identified below:



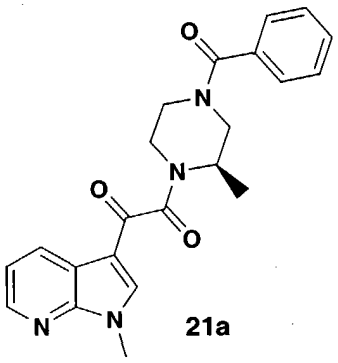
Compound #	R_2	R_4	R_{14}
9a	Cl	H	*(R)*-Me
9b	H	Cl	*(R)*-Me
10a	NO_2	F	*(R)*-Me
11a	H (when R_4=Me), Me (when R_4=H)	Me (when R_2=H), H (when R_2=Me)	*(R)*-Me
11b	H (when R_4=Ph), Ph (when R_4=H)	Ph (when R_2=H), H (when R_2=Ph)	*(R)*-Me
11c	H (when R_4=vinyl), Vinyl (when R_4=H)	Vinyl (when R_2=H), H (when R_2=Vinyl)	*(R)*-Me
12a	H	CN	*(R)*-Me
14a	H	OH	*(R)*-Me
17a	OMe	H	*(R)*-Me
17d	OMe	H	*(S)*-Me
17e	OMe	H	Me
17b	OCH_2CF_3	H	*(R)*-Me
17c	O-*i*-Pr	H	*(R)*-Me
17f	H	PrS	*(R)*-Me
18a	NO_2	H	*(R)*-Me
19a	NHOH	H	*(R)*-Me
20a	NH_2	H	*(R)*-Me

7. A compound of claim 6 or a pharmaceutically acceptable salt thereof, wherein R_2 is –OMe, R_4 is hydrogen, and R_{14} is (R)-methyl.

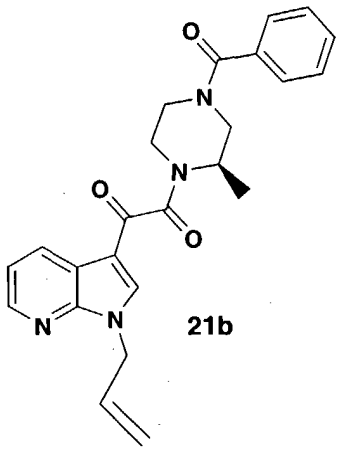
8. A compound of claim 1, or a pharmaceutically acceptable salt thereof, selected from the group consisting of compounds 13a, 21a, and 21 b identified below:



13a



21a



21b

9. A compound of claim 1, or a pharmaceutically acceptable salt wherein R_2, R_3 and R_4 are each independently selected from the group consisting of H, -OCH_3, -OCH_2CF_3, -OiPr, -OnPr, halogen, CN, NO_2, C_1-C_6 alkyl, NHOH, NH_2, Ph, SR_{20}, and $N(CH_3)_2$.

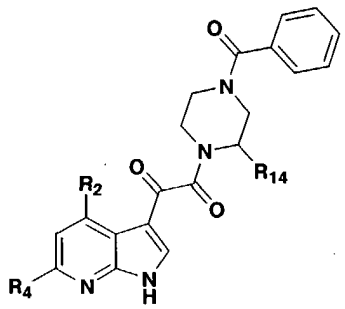
10. A compound of claim 9, or a pharmaceutically acceptable salt wherein n is 2; R_1 is selected from the group consisting of H, C_1-C_6 alkyl and $CH_2CH{=}CH_2$; and R_5 is $(O)_m$ wherein m is 0.

11. A compound of claim 10, or a pharmaceutically acceptable salt thereof, wherein R_7, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, and R_{14} are each independently H or CH_3, provided one or two of the members of the group R_7-R_{14} are CH_3 and the remaining members of the group R_7-R_{14} are H.

12. A compound of claim 11, or a pharmaceutically acceptable salt thereof, wherein one of the members of the group A_1, A_2, A_3, A_4, A_5, B_1, B_2, B_3, B_4, C_1, C_2, C_3, D_1, D_2, and D_3 is selected from the group consisting

of hydrogen, halogen and amino and the remaining members of the group A_1, A_2, A_3, A_4, A_5, B_1, B_2, B_3, B_4, C_1, C_2, C_3, D_1, D_2, and D_3 are hydrogen.

13. A compound of claim 1, or a pharmaceutically acceptable salt thereof, of the Formula below:



wherein:

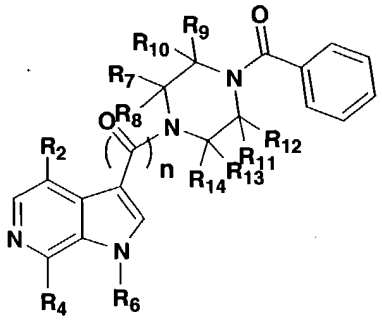
R_2 is selected from the group consisting of H, $-OCH_3$, $-OCH_2CF_3$, -OPr, halogen, CN, NO_2, and NHOH;

R_4 is selected from the group consisting of H, -halogen, -CN, and hydroxy; and

R_{14} is CH_3 or H.

14. A compound of claim 1, wherein R_4 is selected from the group consisting of OH, CN, halogen, $-OCOCH_3$ and C_1-C_6 alkyl.

15. A compound of claim 1, or a pharmaceutically acceptable salt thereof, of the formula identified below:



wherein:

R_2 is selected from the group consisting of H, F, Cl, Br, OMe, CN, and OH;

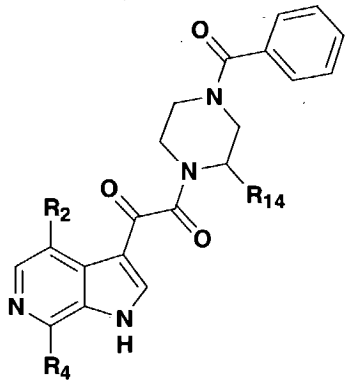
R_4 is selected from the group consisting of H, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 cycloalkyl, C_5-C_6 cycloalkenyl, Cl, OMe, CN, OH, $C(O)NH_2$, C(O)NHMe, C(O)NHEt, phenyl and $-C(O)CH_3$;

n is 2;

R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, and R_{14} are each independently H or CH_3, provided 0-2 of the members of the group R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, and R_{14} may be CH_3 and the remaining members of the group R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, and R_{14} are H; and

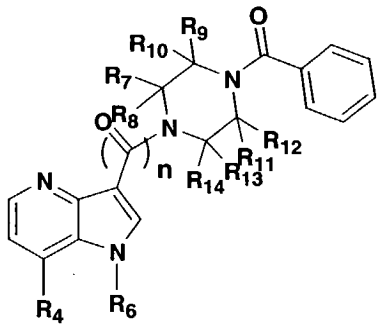
R_6 is H or CH_3.

16. A compound of claim 1, or a pharmaceutically acceptable salt thereof, selected from the group consisting of compounds 5p, 5r, 5s, 5q, 5t, 5u, 5v and 27c identified below:



Compound #	R_4	R_{14}	R_2
5p	H	*H*	H
5r	H	*(R)*-Me	H
5s	H	*(S)*-Me	H
5q	H	Me	H
5t	Cl	H	H
5u	Cl	*(R)*-Me	H
5v	OMe	*(R)*-Me	H
27c	NMe_2	*(R)*-Me	H
5an	Cl	H	OMe
5ao	OMe	H	OMe
5ap	OMe	Me	OMe

17. A compound of claim 1, or a pharmaceutically acceptable salt thereof of formula:



wherein:

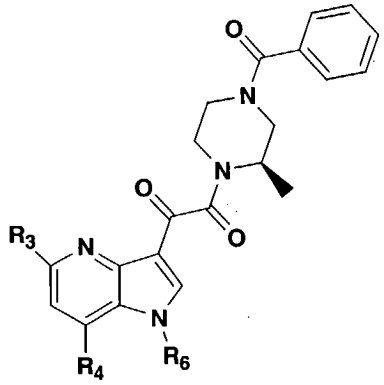
R_4 is selected from the group consisting of H, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 cycloalkyl, C_5-C_6 cycloalkenyl, Cl, OMe, CN, OH, $C(O)NH_2$, C(O)NHMe, C(O)NHEt, phenyl and $-C(O)CH_3$;

n is 2;

R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, and R_{14} are each independently H or CH_3, provided 0-2 of the members of the group R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, and R_{14} may be CH_3 and the remaining members of the group R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, and R_{14} are H; and

R_6 is H or CH_3.

18. A compound of claim 1, or a pharmaceutically acceptable salt thereof, selected from the group consisting of compounds 5w, 5x, 5y, 5z and 5ak identified below:

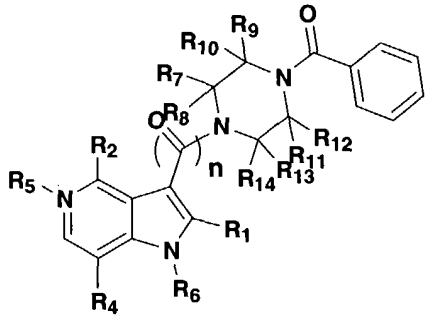


Compound #	R_3	R_4	R_6
5w	H	H	H
5x	H	Me	H
5y	H	Cl	H
5z	H	OMe	Me
5ak	Cl	Me	H

19. A compound of claim 15 wherein R_4, R_7, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13} and R_{14} are H; and R_2 is –OMe.

20. A compound of claim 15 wherein R_2, R_4, R_7, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13} and R_{14} are H.

21. A compound of claim 1, or a pharmaceutically acceptable salt thereof, having the formula



wherein:

R_2 is H, F, Cl, Br, OMe, CN, or OH;

R_4 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 cycloalkyl, C_5-C_6 cycloalkenyl, Cl, OMe, CN, OH, $C(O)NH_2$, C(O)NHMe, C(O)NHEt, Ph or $-C(O)CH_3$;

n is 2;

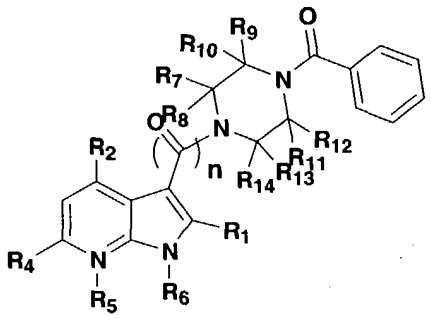
R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13} and R_{14} are each independently H or CH_3, provided up to two of these substituents may be methyl;

R_1 is hydrogen;

R_5 is unsubstituted; and

R_6 is hydrogen or methyl.

22. A compound of claim 1 or pharmaceutically acceptable salts thereof, of the Formula



wherein:

R_2 is H, -OCH_3, -OCH_2CF_3, -OPr, halogen, CN, NO_2, or NHOH;

R_4 is H, -halogen, -CN, or hydroxy;

One or two members of R_7-R_{14} is methyl and the remaining members are hydrogen;

n is 2;

R_1 is hydrogen;

R_5 is $(O)_m$, where m is O; and

R_6 is hydrogen, methyl, or allyl.

23. A pharmaceutical composition which comprises an antiviral effective amount of a compound of Formula I, including pharmaceutically acceptable salts thereof, as claimed in any of claims 1-22.

24. The pharmaceutical composition of claim 23, useful for treating infection by HIV, which additionally comprises an antiviral effective amount of an AIDS treatment agent selected from the group consisting of:

(a) an AIDS antiviral agent;

(b) an anti-infective agent;

(c) an immunomodulator; and

(d) HIV entry inhibitors.

25. A method for treating mammals infected with a virus, comprising administering to said mammal an antiviral effective amount of a compound of Formula I, including pharmaceutically acceptable salts thereof, as claimed in any of claims 1-22.

26. The method of claim 25 comprising administering to said mammal an antiviral effective amount of a compound of Formula I in combination with an antiviral effective amount of an AIDS treatment agent selected from the group consisting of: an AIDS antiviral agent; an anti-infective agent; an immunomodulator; and HIV entry inhibitors.

27. The method of claims 25 and 26 wherein the virus is HIV.